

IN THE CLAIMS:

1. (Currently Amended) A diversity receiving device that receives a plurality of signals carrier-modulated with ~~digital multivalued modulation~~ Quadrature Amplitude Modulation, and selects or synthesizes the signals, comprising:

a plurality of demodulating unit that demodulates three or more input signals respectively and outputs units, each for demodulating an input signal and outputting a complex signal;

a reliability judging unit ~~that calculates for calculating~~ a sum of distances among signal points, each signal point being a point in a complex coordinate corresponding to a complex signal input from a respective demodulating unit, the reliability judging unit for comparing a from a signal point to another signal point for respective signals using the complex signal, compares the sum of the distances with a given threshold, and ~~outputs~~ outputting a judgement judgment result; and

a synthesizing unit ~~that performs for performing at least one of (1)~~ selecting at least one signal, and (2) selecting and synthesizing two or more signals according to the judgment result.

2. (Currently Amended) A diversity receiving device that receives a plurality of signals carrier-modulated with ~~digital multivalued modulation~~ Quadrature Amplitude Modulation (QAM), and selects or synthesizes the signals, comprising:

a plurality of demodulating unit that demodulates three or more input signals respectively and outputs units, each for demodulating an input signal and outputting a complex signal;

a reliability judging unit ~~that estimates a for estimating a QAM mapping point closest to a signal point, the signal point being a point in a complex coordinate corresponding to a complex signal input from a respective demodulating unit, the reliability judging unit for calculating a sum of distances among a plurality of QAM mapping points corresponding to a plurality of input~~

~~signals, for comparing complex signal out of mapping points used when restoring bit data to an original state thereof from the complex signal, calculates a sum of distances from a mapping point to another mapping point for respective estimated mapping points, compares the sum of the distances with a given threshold, and outputs for outputting a judgement judgment result; and~~

~~a synthesizing unit that performs one of (1) selecting at least one signal, and (2) selecting and synthesizing two or more signals according to the judgment result.~~

3. (Currently Amended) The receiving device as claimed in claim 1, wherein ~~the reliability judging unit has the synthesizing unit select the complex signal selects one of the complex signals if the sum of distances from a signal point to another signal point for the respective signals is lower than the given threshold.~~

4. (Currently Amended) The receiving device as claimed in claim 2, wherein ~~the reliability judging unit has the synthesizing unit select the complex signal selects one of the complex signals if the sum of distances from a mapping point to another mapping point for the respective estimated mapping points is lower than the given threshold.~~

5. (Currently Amended) The receiving device as claimed in claim 1, wherein the synthesizing unit adjusts a weighting amount when synthesizing according to the sum of distances ~~from a signal point to another signal point for the respective signals.~~

6. (Currently Amended) The receiving device as claimed in claim 2, wherein the synthesizing unit adjusts a weighting amount when synthesizing according to the sum of distances ~~from a mapping point to another mapping point for the respective estimated mapping points.~~

7. (Currently Amended) A diversity receiving device that receives a plurality of signals carrier-modulated with ~~digital multivalued modulation~~ Quadrature Amplitude Modulation, and selects or synthesizes the signals, comprising:

[[a]] two demodulating unit that demodulates units, each for demodulating a respective input signal of two input signals respectively and outputs for outputting a complex signal;

a reliability judging unit that calculates for calculating a distance between signal points, each signal point being a point in a complex coordinate corresponding to a complex signal input from a respective demodulating unit, the reliability judging unit for comparing from a signal point to another signal point using the complex signal, compares the distance with a given threshold, and outputs for outputting a judgement judgment result calculated according to the comparison result;

a synthesizing unit that outputs for outputting reliability information based on the judgement judgment result and synthesizes synthesizing both of the signal points;

a demapping unit that restores for restoring bit data to an original state thereof from the synthesized signal and calculates calculating likelihood in restoring; and

an error correcting unit that performs for performing error correction of the bit data using the likelihood corrected based on the reliability information.

8. (Currently Amended) [[A]] The diversity receiving device according to claim 1 that receives a plurality of signals carrier modulated with digital multivalued modulation, and selects or synthesizes the signals, wherein the synthesizing unit is for outputting reliability information based on the judgment result, said diversity receiving device further comprising:

a demodulating unit that demodulates three or more input signals respectively and outputs a complex signal;

a reliability judging unit that calculates a sum of distances from a signal point to another signal point for respective signals using the complex signal, compares the sum of the distances with a given threshold, and outputs a judgement result calculated according to comparison results in the respective signal points;

a synthesizing unit that outputs reliability information based on the judgement result and synthesizes the input signal points;

a demapping unit that restores for restoring bit data to an original state thereof from the synthesized signal and calculates calculating likelihood in restoring; and

an error correcting unit that performs for performing error correction of the bit data using the likelihood corrected based on the reliability information.

9. (Currently Amended) [[A]] The diversity receiving device according to claim 2, wherein the synthesizing unit is for outputting reliability information based on the judgment result, the diversity receiving device further comprising that receives a plurality of signals carrier-modulated with digital multivalued modulation, and selects or synthesizes the signals, comprising:

a demodulating unit that demodulates three or more input signals respectively and outputs a complex signal;

a reliability judging unit that estimates a mapping point closest to a complex signal out of mapping points used when restoring bit data to an original state thereof from the complex signal, calculates a sum of distances from a mapping point to another mapping point for respective estimated mapping points, compares the sum of the distances with a given threshold, and outputs a judgement result calculated according to comparison results in the respective signal points;

a synthesizing unit that outputs reliability information based on the judgement result and synthesizes the input signal points;

a demapping unit ~~that restores for restoring~~ bit data to an original state ~~thereof~~ from the synthesized signal and ~~calculates for calculating~~ a likelihood in restoring; and
an error correcting unit ~~that performs for performing~~ error correction of the bit data using the likelihood corrected based on the reliability information.

10. (Currently Amended) The receiving device as claimed in claim 7, wherein the reliability judging unit ~~outputs is for outputting~~ information indicating that reliability is high, as a ~~judgement judgment~~ result, if not fewer than half of the comparison results for each ~~signal point are of the signal points is~~ lower than the threshold.

11. (Currently Amended) The receiving device as claimed in claim 7, wherein the reliability judging unit ~~stores is for storing~~ distances from the respective signal points to other signal points for a certain previous period and ~~sets for setting~~ an average value of the distances to a threshold.

12. (Currently Amended) The receiving device as claimed in claim 8, wherein the reliability judging unit ~~outputs is for outputting~~ information indicating that reliability is high, as a ~~judgement judgment~~ result, if not fewer than half of the comparison results for each ~~signal point are of the signal points is~~ lower than the threshold.

13. (Currently Amended) The receiving device as claimed in claim 9 wherein the reliability judging unit ~~outputs is for outputting~~ information indicating that reliability is high as a ~~judgement judgment~~ result, if not fewer than half of the comparison results for each ~~signal point are of the signal points is~~ lower than the threshold.

14. (Currently Amended) The receiving device as claimed in claim 8, wherein the reliability judging unit ~~stores~~ is for storing distances from the respective signal points to other signal points for a certain previous period and ~~sets~~ for setting an average value of the distances to a threshold.

15. (Currently Amended) The receiving device as claimed in claim 9, wherein the reliability judging unit ~~stores~~ is for storing distances from the respective signal points to other signal points for a certain previous period and ~~sets~~ for setting an average value of the distances to a threshold.